

**BETA-SECRETASE TRANSGENIC ORGANISMS,
ANTI-BETA-SECRETASE ANTIBODIES,
AND METHODS OF USE THEREOF**

ABSTRACT OF THE INVENTION

Transgenic non-human animals, including, for example, transgenic rodents and transgenic non-human mammalian cells, which harbor a transgene that eliminates the expression of the β -secretase, BACE1, are provided. In addition, antibodies specific for BACE1 are provided. Also provided are methods of diagnosing a neurodegenerative disease, including Alzheimer's disease, and methods of identifying agents that modulate or treat Alzheimer's disease and related pathology.